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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,745

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Michael Richard Richardson

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EXAMINER

MCKIE, GINA M

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

12/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/521,745

Applicant(s)RICHARDSON, MICHAEL
RICHARD**Examiner**

GINA MCKIE

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2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed September 25, 2008. Claims 1 and 3 remain pending in the application.

- Claim 1 has been amended.
- Claims 2 and 4 were canceled in the amendment filed March 26, 2008.
- No claims are new.

Response to Arguments

Claim Rejections - 35 USC § 103

2. Applicant's arguments filed September 25, 2008 have been fully considered but they are not persuasive. The examiner has thoroughly reviewed the applicant's arguments, however, firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

(1) Applicant's Arguments: "Applicant submits that there is no motivation to combine the references. Specifically, there is no motivation to combine a digital processing system, as taught by Henriksson with an analog signal processing system, as taught by Gossel. Notably, one of ordinary skill in the art would not look to a reference that teaches processing analog signals for a suggestion on how to process a digital signal."

Examiner's response: The motivation to modify the invention of Henriksson as taught by Gossel is to suppress interference. As one of ordinary skill in the art would know, interference exists in both digital and analog systems. The problem of

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interference is, therefore, translatable. Further, Henriksson discloses in figure 2, block 201 that the received signal is converted from analog-to-digital, therefore, Henriksson discloses an analog signal. While one of ordinary skill *may* not ordinarily look to a reference that teaches processing analog signals for suggestion on how to process a digital signal, one of ordinary skill in the art, motivated to suppress interference substantially to a theoretically optimum extent, would look to Gossel. It would have been obvious to one of ordinary skill in the art to apply the teachings of Gossel to the teachings of Henriksson and have a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element, thus allowing interference suppression substantially to a theoretically optimum extent.

(2) Applicant's Arguments: "Henriksson and Gossel fail to teach that the zero crossing position substantially coincides with the position of each unwanted signal element." (claim 1)

Examiner's response: Gossel teaches, "Assuming that the first pulse of an interference burst reaches the receiver instead of a real zero crossing and that this first pulse has initiated blocking for the minimum duration of the next zero crossing interval to be expected, the subsequent real zero crossing but also the subsequent pulses of the interference burst will be suppressed," in col. 3, lines 28-37 which supports figure 1 of Gossel.

Figure 1a of Gossel shows an example of a frequency-modulated signal and only the zero crossings of this signal are used for further evaluation in Gossel (col. 2, lines 17-20). These zero crossings are shown as pulses in figure 1b.

Since "the subsequent real zero crossing" and the "subsequent pulses of the interference burst" will both be suppressed, i.e. zeroed, one of ordinary skill in the art would agree that the "zero crossing position substantially coincides with the position of each unwanted signal element" as claimed in claim 1.

The applicant is reminded that the examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The examiner is not limited to the applicants' definition, which is not specifically set forth in the claims.

The applicant is reminded that the rejection is made based on the entire content of the cited prior art.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henriksson (US 2004/0085891 A1) in view of Gossel (U.S. Patent No. 3,876,945).

Regarding claim 1:

As shown in figures 1-9, Henriksson discloses a method for digitally processing a signal in a frequency domain containing regular or quasi-regular elements of unwanted signal, the method comprising the steps of:

- (i) establishing timing characteristics of the unwanted signal elements in a portion of said signal (**see figure 2, reference character 202**);

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- (ii) generating a time domain window function using said established timing characteristics (**see figure 2, reference characters 202 and 203**), said time domain window function being a window with cosine transitions (**see ¶ [0050]**); and
- (iii) applying the generated window function to said signal portion to selectively reduce the amplitude of said unwanted signal elements relative to other elements of said signal (**see figure 3 and ¶ [0010]**).

Henriksson does not specifically disclose having a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element.

However, Gossel discloses having a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element (**see figure 1 and col. 3, lines 23-37**).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the invention of Henriksson as taught by Gossel and have a sinusoidal window with zero crossings substantially coinciding with the position of each unwanted signal element, thus allowing interference suppression substantially to a theoretically optimum extent (**Gossel, col. 1, lines 52-55**).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henriksson in view of Gossel as applied to claim 1 above, and further in view of Daspit et al. (U.S. Patent no. 3,754,101).

Regarding claim 3:

The combination of Henriksson and Gossel discloses a method according to claim 1, further comprising the step of: (iv) applying a Fourier transform to the signal

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output from step (iii) (**see figure 2, reference character 206**). However, the combination of Henriksson and Gossel does not specifically disclose: (v) applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal elements.

Daspit, however, discloses applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal elements (**see col. 4, lines 21-24 and 40-44 where Daspit discusses double sideband suppressed carrier amplitude modulation**).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the invention of Henriksson and Gossel as taught by Daspit and apply an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal elements, thus allowing the retaining of only the useful spectral elements (**Daspit, col. 4, lines 36-40**).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GINA MCKIE whose telephone number is (571)270-5148. The examiner can normally be reached on Mon-Fri, 9:00 AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gina McKie/

Examiner, Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611